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Transgenerational Effects of Abusive Violence on the Children of Vietnam Combat Veterans

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*This study examined the relationship between participation in abusive violence in Vietnam and behavioral disturbances among children aged 6-16 in the next generation. As part of the National Vietnam Veterans Readjustment Study (NVVRS) detailed data were obtained on a national sample of male veterans who were living in households with children aged 6–16 (*N = *257). Interviews with spouses/partners were used to evaluate current family relationships and child behavior. Children of veterans who participated in abusive violence showed more behavioral disturbance than children of other Vietnam veterans even after multivariate analysis was used to adjust for other factors such as PTSD symptoms, combat exposure, and postmilitary family relationships. Participation in abusive violence appears to affect parent-child relationships in a way that adversely influences children living at home.*

KEY WORDS: veterans; posttraumatic stress disorder; family relationships; Vietnam.

In the years since the end of the Vietnam war, numerous studies have found robust relationships between exposure to war zone stressors in Vietnam and the development of adverse sequelae such as posttraumatic stress disorder (PTSD), other psychiatric disorders, and diverse impairments of social adjustment (Kadushin, Boulanger, & Martin, 1981; Kulka et al. 1990a, 1990b; Laufer, Yager, Frey-Wouters, & Donnellan, 1981). Several studies have specifically highlighted the adverse effects of participating in abusive violence (e.g., atrocities), actions that seem to add to the adverse effects of more conventional types of warfare in the etiology of PTSD (Fon-

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tana, Rosenheck, & Brett, 1992; Fontana & Rosenheck, 1994; Yager, Laufer, & Gallops, 1984; Yehuda, Southwick, & Giller, 1992). These authors have suggested that participation in conventional warfare, although frequently horrific, is buffered by a time-honored tradition of martial honor, pride, and legitimacy that is stripped away by unsanctioned violence against prisoners of war or non-combatants, especially children. Data from these studies suggest that participation in abusive violence has a substantial effect on severity of PTSD and that this impact occurs independently of other factors related to PTSD, including exposure to conventional combat. Clinical studies further suggest that participation in abusive violence can be associated with especially virulent forms of PTSD involving intense self-hatred and loathing, and a profoundly impaired capacity to form trusting, positive relationships (Haley, 1974; Rosenheck, 1985).

Far less attention has been focused on the potential effects of wartime trauma, and participation in abusive violence in particular, on subsequent generations. Clinical reports indicate that children of war veterans, like those of holocaust survivors, sometimes manifest adjustment problems that appear to be related to their parents' traumatic experiences (Barocas & Barocas, 1973; Epstein, 1979; Rosenheck & Nathan, 1985; Rosenheck, 1986). These clinical reports have highlighted the role of participation in abusive violence or atrocities as a factor adversely affecting parent-child relationships (Haley, 1985; Rosenheck & Nathan, 1985). Many veterans who participated in abusive violence have extreme difficulty forming trusting, intimate relationships, and have persistently negative images of themselves as societal outcasts. These phenomena have also been observed to be associated with increased intrafamilial violence, substance abuse, and extreme difficulty forming nurturant parental bonds (Haley, 1985). Although some empirical studies have lent support to clinical observations of a transgenerational impact of trauma (Danieli, 1988; Harkness, 1994; Last & Klein, 1981; Major, 1996; Nadler, Kav-Venaki, & Gleitman, 1985; Rosenheck & Fontana, in press; Solomon, Kotler, & Mikulincer, 1988) others have failed to document significant effects (Schwartz, Dohrenwend, & Levav, 1994), and no studies have examined the effect on the next generation of participation in abusive violence, specifically.

Data from the National Vietnam Veterans Readjustment Study (NVVRS) convincingly demonstrated that the families and children of Vietnam veterans who meet criteria for PTSD have significantly more adjustment problems than the families and children of other Vietnam veterans (Jordan et al., 1992; Kulka et al., 1990a, 1990b). However, recent studies have shown that the development of PTSD is significantly influenced by diverse pre- and postmilitary factors in addition to war zone stressors such as combat and participation in atrocities (Fontana & Rosenheck, 1993;

1994). Thus, it is thus not clear whether behavioral problems in subsequent generations are exclusively attributable to PTSD and related psychiatric sequelae such as substance abuse and domestic violence, or whether participating in abusive violence can have an independent effect on child behavior. In this study, we reanalyzed data from the NVVRS to evaluate the relationship between child behavioral difficulties and fathers' participation in abusive violence.

Method

Sample

The sampling frame for the NVVRS survey was a representative national sample of veterans who served during the Vietnam era (1964–1975) based on computerized military personnel records. Details are described in the original publications on the survey (Kulka et al., 1990a, 1990b). In the final sample of male Vietnam Theater Veterans (N = 1,198) Blacks and Hispanics were over-sampled. All interviews were conducted in 1986-88.

In addition to veteran interviews, the spouse/partners of a subset of veterans were interviewed about family relationships and the behavior of their children. Veterans in three high-risk groups were sampled in this supplemental survey to increase statistical power to detect significant relationships between risk factors and various measures of family and child adjustment. All veterans who met criteria for PTSD were included. Veterans without PTSD who had high combat exposure or who had high scores on a standard measure of demoralization were oversampled.

Measures

Demographic characteristics. Data on age (M = 40.9, SD = 3.9), race (26% Black; 33% Hispanic), marital status (96% married), and family income (M = \$22,313, SD = \$10,041) were obtained from all veterans.

Premilitary family environment. Premilitary experience in the veteran's family of origin were addressed by six measures: (a) the Family Stability Scale (Kadushin et al., 1981; M = 2.9, SD = 2.0, range 0–10); (b) a history of exposure to physical violence or abuse in the family before the age of 18 (35%); (c) having a parent who suffered from mental illness or substance abuse (22%); (d) positive emotional qualities in the veteran's relationship to his father (e.g., father-son affection, sharing of interests, supportive confiding, feelings of closeness, and helpfulness—all measured on 5-point Lik-

Table 1. Questions Concerning Participation in Combat Exposure and Abusive Violence

I. Combat exposure
  1–3. Were you ever/did you ever. . .
    (1) stationed at a forward observation post or base camp?
    (2) fly fixed-wing aircraft on missions over Vietnam, Laos, and/or Cambodia?
    (3) part of a land or naval artillery unit which fired on the enemy?
  4–8. During your tour(s) in or around Vietnam. . .
    (4) did you receive small arms fire from the enemy?
    (5) did you or your unit (patrols) encounter anti-personnel weapons such as (land) mines and/or sapper attacks?
    (6) did your unit receive sniper fire and/or sapper attacks?
    (7) was your unit (patrol) ambushed?
    (8) did your unit (patrol) engage the Vietcong, guerrilla, or unidentified troops in a firefight? [or]. . . did your unit (patrol) engage the North Vietnamese Army (NVA) or other organized military forces in a firefight?
  9. Did you ever see Americans *being* killed or wounded in (or around) Vietnam or did you (ever) *see* any Vietnamese or other enemy being killed or wounded in (or around) Vietnam?
  10. Were you wounded or injured in combat?

II. Abusive violence
  1. Were you ever in a combat situation in (or around) Vietnam where you participated in any kind of injury or destruction that seemed necessary then, but that you would consider unnecessary now?
  2–4. To what extent were you involved in:
    (2) Terrorizing, wounding, or killing civilians?
    (3) Torturing, wounding, or killing hostages or prisoners of war?
    (4) Mutilation of bodies of the enemy or civilians?
  5. In combat situations in (or around) Vietnam, women, children, and old people were sometimes seen by *our* side as the enemy. Were you ever (directly involved) in a situation in Vietnam where women, children, or old people were either injured or killed by American or South Vietnamese (ARVN) soldiers?
  6. In combat situations in (or around) Vietnam, Vietnamese prisoners or civilians were often injured because they were suspected of being enemy sympathizers, or to obtain information, or to avenge the deaths of American soldiers, or for other reasons. Were you ever (directly involved) in a situation where a Vietnamese *prisoner* was injured or killed for any reason?

ert scales) (M = 3.27, SD = 1.08; range 5–25; Cronbach's alpha = .89); (v) positive emotional qualities in the veteran's relationship to his mother, assessed with similar items (M = 4.04, SD = .86; range 5–25; Cronbach's alpha = .88); and (vi) a past history of conduct disorder, measured by reports of anti-social behaviors occurring before the age of 15 (Helzer, 1981; M = 1.8, SD = 1.9, range 0–10).

Period of military service. Exposure to high levels of war zone stress was identified by a dichotomous variable based on a combination of 94 items, including indicators of involvement in abusive violence (37%; Kulka et al., 1990b). Traumatic experience specifically related to combat was evaluated with the Revised Combat Scale (M = 8.0, SD = 4.2; range 0–12; Laufer et al., 1981). The specific questions from this scale are presented

in Table 1. Each item is scored with 1 point, if present, except items 9–10 which receive a score of two points.

Six additional questions specifically evaluated participation in abusive violence. These questions are also presented in Table 1. Veterans responding affirmatively to having participated in any of these activities were coded as having participated in abusive violence (38%).

Postmilitary period. Multiple features of postmilitary adjustment were also examined. Severity of PTSD symptoms was assessed using the Mississippi Scale for Combat-Related PTSD (Keane, Caddell, & Taylor, 1988; range 37–185). Survivor guilt was assessed with a single three-level severity assessment, and past suicidal behavior with a three-level scale (0 = no attempt or gesture, 1 = gesture, 2 = serious attempt). Lifetime psychiatric diagnoses other than substance abuse, and diagnoses of substance abuse or dependence (alcohol or drug related) were assessed with the Diagnostic Interview Schedule (Robins, Helzer, Croughan, & Ratcliff, 1981)

Postmilitary education, current marital status, social support (measured by 10 questions concerning access to assistance of various types: M = 19.0; SD = 2.0; range 10–20; Cronbach's alpha = .96), and arrests for criminal activity were also evaluated. A seven-item scale was used to assess recent violent behavior by the veteran (M = 7.71; SD = 4.33; range 7–35; Cronbach's alpha = .63; range 7–35).

Child Behavior and Family Adjustment

Data were obtained from interviews with veterans' spouses or partners on the behavioral adjustment of children aged 6–16 using the Child Behavior Check List (CBCL; Achenbach, 1978). The CBCL is a 122-item schedule of questions concerning child behavior and adaptation that generates an overall child behavior score. Following procedures established by the developers of the CBCL, raw scores were standardized on a 0–100 scale using norms from a national sample of children, stratified by gender and age (6–11 years; 12–16 years). In cases in which there was more than one child in the family, these standardized scores were averaged across all the children. These standard scores were also classified into a four-level ordinal series: 1 = normal with no or few problems; 2 = normal with some problems; 3 = clinical range, mild problems; and 4 = clinical range, moderate-severe problems (Achenbach, 1978).

The Family Adaptability and Cohesion Evaluation Scale (FACES II; Olsen et al., 1983) was used to measure the spouse/partner's assessment of family adjustment among couples with children. Measures of family adaptability and of family cohesion from the FACES II were combined into

a three-level measure of family adjustment using standardized cutoffs (Olsen et al., 1983). Family violence was assessed with questions concerning the frequency of eight actions involving either the veteran and his spouse/significant other (e.g. throwing, pushing, slapping, hitting etc.) that occurred within the family during the past year (M = 1.4; SD = .9; range 1–4).

Plan of Analysis

First, t-tests and χ^2 tests were used to compare the relationship of child behavior problems to fathers' participation in abusive violence. These analyses were repeated among the subgroup of veterans who were exposed to high levels of warzone stress to compare children of veterans who experienced high warzone stress and who participated in abusive violence, with children of veterans who were exposed to high levels of warzone stress but who did not participate in abusive violence.

Next, to identify other factors that might account for these relationships, bivariate correlations were used to examine the relationship of child behavioral problems to a broad range of other premilitary, warzone and postmilitary factors. A series of ordinary least-squares multiple regression analyses were conducted to examine the relationship of reported participation in abusive violence and child behavior problems, controlling for potentially confounding premilitary and military factors, and for potentially mediating postmilitary factors that were found to be significantly related to child behavior. To determine whether the veterans' experience especially affected children in specific age or gender subgroups, a final series of analyses assessed the interaction between parental participation in abusive violence and the age and gender distribution of children in each family.

Results

Sample Characteristics

Of the 94 veterans (36%) who met the formal cutoff for exposure to high war zone stress, 71 reported participating in abusive violence in Vietnam (75% of the high war zone stress group). An additional 26 veterans who did not meet criteria for high war zone stress also reported participating in abusive violence for a total of 97 veterans (38% of the entire sample). One third of the family-study sample (N = 85, 33%) scored above the established threshold score of 89 for PTSD in community samples on

Table 2. Participation in Abusive Violence and Child Behavior Problems

Child Adjustment	Participated in Atrocities		No Participation in Atrocities	
	N	%	*N*	%
All male veterans (1)				
Normal, no/few problems	24	25	62	39
Normal, some problems	44	45	76	48
Clinical range, mild	18	19	13	8
Clinical range, severe	11	11	9	6
Total	97	100	160	100
Veterans with high war zone stress				
Normal, no/few problems	16	23	11	48
Normal, some problems	34	48	11	48
Clinical range, mild	14	20	1	5
Clinical range, severe	7	10	0	0
Total	71	100	23	100

Note. Child behavior problems were associated with parental participation in abusive violence in the full sample and in the high war zone stress subgroup (both $ps < .05$).

the Mississippi Scale (Keane, Caddell, & Taylor, 1988). There was an average of 1.2 ($SD = 0.3$) children aged 6–16 in each family. Their mean age was 11.1 years ($SD = 2.6$; median age = 11); and 49% were males.

Abusive Violence and Child Behavior

As hypothesized, children of veterans who participated in abusive violence had significantly higher CBCL scores ($M = 56.4$, $SD = 9.9$) than children of other Vietnam Theater veterans ($M = 52.5$, $SD = 9.9$, $t(256) = 3.12$, $p < .01$). This relationship also held within the subset of veterans exposed to high war zone stress: Means (*SD*s) were 56.8 (9.3) vs. 50.1 (7.9), respectively, $t(93) = 3.3$, $p < .01$. In both cases, the differences between the means was about one-half the standard deviation, a moderate effect size.

Table 2 shows that CBCL scores were twice as likely to be in the clinical range among offspring of veterans who reported participating in abusive violence, $\chi^2(3, N = 257) = 11.6$, $p < .01$. Table 2 also showed that this pattern was observed in a separate analysis conducted exclusively on the children of veterans who experienced high war zone stress.

Potential Confounding and Mediating Factors

Examination of bivariate correlation coefficients revealed significant relationships between CBCL scores, the veteran's participation in abusive

Table 3. Correlation Matrix of Variables Significantly Associated with Child Problem Behavior Scores

	1	2	3	4	5	6	7	8	9
1. Child behavior	—	0.17	0.10	0.17	−0.15	−0.24	0.20	0.21	0.21
2. Abusive violence		—	0.16	0.44	0.01	0.11	0.07	0.06	0.41
3. Father's child abuse			—	0.09	−0.05	−0.18	0.09	0.05	0.19
4. Combat exposure				—	0.04	0.15	−0.07	−0.01	−0.49
5. Married					—	0.19	−0.13	0.17	−0.15
6. Income						—	−0.13	−0.19	−0.32
7. Family violence							—	0.17	0.20
8. Family adjustment								—	0.08
9. PTSD symptoms									—

Note. Correlation coefficients greater than .09 are significant at $p < .05$.

violence, and seven other measures ($df = 255$ for all correlations; see correlation matrix presented in Table 3). Child behavior problems were significantly associated with parental experience of abuse as a child, combat exposure, not being married, low income, family violence, family (mal)adjustment and severity of father's PTSD symptoms.

There was no significant relationship between CBCL scores and veteran's age, race, instability of family life in childhood, relationships with parents, parents' mental illness, antisocial behavior before the age of 15, current social support, number of close friends, suicide attempts, survivor guilt, recent violent behavior, lifetime psychiatric disorder other than PTSD, or lifetime substance use disorder.

In the first step of the hierarchical multiple regression analysis (Table 4), we controlled for two potentially confounding factors associated with child behavior problems that occurred *before* the birth of the veteran's children: the father's experience of child abuse, and exposure to combat, both of which might also have explained the childrens' tendency to have behavioral problems. After adjusting for these factors, the relationship between the veteran's participation in abusive violence and his children's behavior remained significant, $F(1, 245) = 3.19, p < .05$. Furthermore, father's exposure to combat did not have an independent significant relationship to child behavioral problems beyond the effect of participation in abusive violence.

In the second step, we added significant, potentially mediating factors reflecting current family environment: family income, current marital status, family adjustment, and family violence. The association between the veteran's participation in abusive violence and child behavioral disturbance was virtually unchanged from the previous analysis, $F(1, 241) = 3.14, p < .05$.

In the third step, we controlled for the veteran's PTSD symptoms in addition to the previous, more external factors and found only a small re-

Table 4. Hierarchical Regression Analysis of Variables Predicting Behavior Problems in Children of Male Vietnam Combat Veterans (n = 249)

Variable	B	SE B	Beta
Step 1			
Father's child abuse	2.21	1.26	.11
Combat exposure	0.20	0.16	.09
Abusive violence	3.19	1.41	.16*
Step 2			
Father's child abuse	2.21	1.26	.07
Combat exposure	0.20	0.16	.05
Abusive violence	3.19	1.41	.16*
Married	-3.12	2.95	-.06
Income	-1.33	0.60	-.14*
Family violence	0.07	0.64	.09
Family adjustment	1.34	0.73	.11
Step 3			
Father's child abuse	1.39	1.26	.07
Combat exposure	0.12	0.17	.05
Abusive violence	3.08	1.43	.15*
Married	-3.10	2.96	-.07
Income	-1.31	0.62	-.14*
Family violence	0.94	0.67	.09
Family adjustment	1.34	0.74	.11
PTSD symptoms	0.01	0.03	.01

Note. R-squared = .07 for step 1, $p < .001$; delta r-squared = 0.07 for step 2, $p < .001$; delta r-squared for step 3, ns.
*$p < .05$.

duction in the relationship between the veteran's abusive violence and his children's behavior, $F(1, 241) = 3.07, p < .05$. This result suggests that the relationship of abusive violence and child behavior problems is only slightly mediated by PTSD symptoms.

No significant interaction was observed between fathers' participation in abusive violence and either the age or gender of the children.

Discussion

This study found a significant, direct, relationship between participation of veterans in abusive violence during the Vietnam conflict and behavioral disturbances in their children some 15-20 years later. The importance of this relationship is highlighted by the lack of any significant relationship between child behavioral disturbances and many pre- and post-military veteran characteristics, including lifetime psychiatric illness, lifetime substance abuse, recent violent behavior, or survivor guilt. The specificity of this relationship is further suggested by the fact that it re-

mained significant even after adjustment was made for combat exposure, current family adjustment, domestic violence in the veteran's family of procreation, and for the veteran's PTSD symptoms, all of which also show strong associations with child behavior problems. In addition, father's exposure to combat did not have an independent significant relationship to child behavioral problems beyond the effect of participation in abusive violence. Thus none of the expectable premilitary, military, or postmilitary variables account for the observed relationship, and only income had a relationship to child problems that was independent of the effect of participation in abusive violence. Thus while previous clinical description and survey research using data from the NVVRS demonstrated the existence of a relationship between war-related PTSD and child behavior problems, this study shows, in addition, that participation in abusive violence affects child behavior independently of its role in the genesis of PTSD.

Although these data clearly suggest that participation in abusive violence in Vietnam has a negative effect on veterans' children, the precise nature of this effect and its mechanism of action are not clear. One possibility that must be acknowledged is that our multiple regression model did not fully control for the effect of combat exposure, current family adjustment, domestic violence in the veteran's family of procreation, or the veteran's PTSD symptoms. Each of these factors was associated with both abusive violence in Vietnam and child behavior problems, and may therefore account for the relationship between the two.

Another possibility is that veterans who committed abusive acts toward children in Vietnam had an especially difficult time as parents because they were troubled by memories of children they had harmed. To test this possibility we repeated all analyses, excluding the response to a question that specifically addresses violence towards children and civilians from the measurement of abusive violence. Results of this hypothesis were not different from those using the more inclusive measure, suggesting that our observations are not specifically attributable to participation in abusive violence towards children.

A third possibility is that veterans who participated in abusive violence experience discomfort making emotional connections with their children or with the aggressive aspects of setting limits and, as a result, have more difficulty being empathic, firm and consistent. Unfortunately data are not available for empirical evaluation of this hypothesis.

The findings presented here must be considered tentative because they are based on retrospective reports of wartime experiences recalled from early adulthood, are subject to possible recall biases, and do not include comparative data on the background of childhood traumatic exposure of the childrens' mothers. They nevertheless suggest that participation in abu-

sive violence impairs veterans' parenting relationship to their children apart from their effect on PTSD symptoms and on many aspects of family interactions. These data thus suggest a specific and prolonged transgenerational effect of participating in abusive violence. Further investigation is needed into the mechanisms of transmission of these effects, perhaps through more detailed study of parent-child interactions. These findings also suggest that careful consideration of parental trauma history can be an important feature of the clinical history of both child and adult patients.

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